ISSUES MEMORANDUM

Colonial Gas Company d/b/a National Grid – Project Change, EFSB 05-2A

I. OVERVIEW OF APPROVED PROJECT AND PROJECT CHANGE REQUEST

Applicant: Colonial Gas Company d/b/a National Grid ("Colonial" or "Company")

Name of Project: Colonial Gas Company's Request for a Project Change to Phases I and II of the Western Segment of the Sagamore Line Reinforcement Project ("Project Change")

Description of the Project as Approved by the Siting Board in 2006 and Current Status

In 2006, the Siting Board approved Colonial's petition to construct three new non-contiguous segments of natural gas pipeline approximately 13.1 miles in combined length in the towns of Sandwich, Barnstable, Yarmouth, Dennis, and Harwich (the "Project"). Colonial Gas Company, 15 DOMSB 269, 276 (2006) ("Final Decision"). The three new pipeline segments were designed to augment the Company's existing Sagamore Line, a 42-mile distribution pipeline located on Cape Cod. The Project consists of: the Western Segment in Sandwich and Barnstable; the Middle Segment in Yarmouth, Dennis, and Harwich; and the Eastern Segment in Harwich.

Colonial has further subdivided the Western Segment of the Project into three contiguous segments designated, west to east, as Phases I, II, and III. The Project Change would affect only Phases I and II of the Western Segment, which, in total, would consist of approximately 4.4 miles of 20-inch diameter gas pipeline (the "Pipeline") located in Sandwich. Phase I (approximately 11,000 feet in length) would originate at the Algonquin Gas Transmission take station in Sandwich (located approximately 190 feet west of Route 130) and continue eastward along Service Road to a tie in at the existing Sagamore Line at Quaker Meetinghouse Road in Sandwich where Phase II (an additional 12,000 feet) would begin and continue along Service Road to another tie in with the existing Sagamore Line at Chase Road in Sandwich.[1]

Construction of the Middle Segment has been completed and is currently operational. Following construction of Phases I and II of the Western Segment, the Company indicated that Phase III of the Western Segment and the entirety of the Eastern Segment will be permitted and constructed as demand warrants (Exh. NG-1, at 1).

Description of the Project Change Proposal

[1] Phase III, which is not at issue in this proceeding, would commence at the tie in at Chase Road and would continue into Barnstable and end at a point where an existing NSTAR right-of-way crosses Service Road just west of Route 149. Completion of Phase III would also complete the Western Segment.

Pursuant to the Project Change, Colonial seeks to modify the Project in two key respects: (1) realign the Pipeline route, moving the approved Pipeline location approximately 15 feet northward; and (2) change the method of testing the Pipeline from pneumatic (air) testing to hydrostatic testing to facilitate an increase in the Maximum Allowable Operating Pressure ("MAOP") from 270 pounds per square inch gauge ("psig") to 575 psig.

1. Realignment of the Pipeline Route

As originally approved, the Pipeline would be located along the northern paved edge of Service Road. In the Project Change, the Company seeks permission to move the Pipeline route approximately 15 feet northward, into the unpaved and largely wooded buffer area of the 100 foot-wide Service Road layout (Exh. NG-1, at 1). Service Road is a two-lane roadway owned and maintained by the Town of Sandwich ("Town") that is parallel to and directly south of U.S. Route 6. The Company is proposing the Project Change in response to concerns expressed by officials from the Town's Public Works and Planning departments as well as officials from the Town's Water District (Exh. NG-1, at 4, Appendix C). The Town officials requested the Pipeline realignment given the existing density of utilities within Service Road[2] and their concerns regarding the Town's ability to protect and maintain existing utilities as well as construct additional utilities the Town is considering for the future, including a new water line and a new sewer line (Exh. NG-1, at 4-6).

More specifically, the Town officials requested the realignment of the Pipeline route based on the following concerns: (1) ensuring the safety of the public and utility workers; (2) avoiding possible damage to or disruption of existing water supply and fire hydrant lines; and (3) reducing costs to the Town for installations, maintenance, and repairs of its present and future utility and roadway infrastructure. The Town Department of Public Works noted that the approved location would also necessitate cutting the pavement to install the Pipeline, which it stated would not be allowed by the Town unless the road were in disrepair and/or scheduled for improvements – which is not the case (Exh. NG-1, at Appendix C). The Town officials also noted that the Project Change would further the Town's plan to build an off-road bicycle path as part of the Claire Saltonstall Bikeway (a Boston-to-Provincetown combined on-road and off-road route) (Exh. NG-1, at Appendix C). The Town engineer indicated that the relocated Pipeline right-of-way ("ROW") could provide a dual benefit serving as a graded and cleared base that could be used for such an off-road bicycle path.

In response to the request by above-mentioned Town officials, the Company conducted an engineering and environmental analysis of the requested realignment and determined it would be an improvement to the Company's originally proposed and approved Pipeline location (Exh. NG-1, at 5). To accomplish the relocation, the Company stated that it would need to clear a ten- to 15-foot wide strip of the Service Road layout from the existing 70- to 120-foot wide wooded

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[2] On portions of the north side of Service Road there is an existing 16-inch diameter water main and a fire hydrant line, located within a few feet of the approved Pipeline route (Exh. NG-1, at 5, Appendix C); on the south side of Service Road there is an existing twelve-inch diameter gas pipeline (with a MAOP of 270 psig) and a six-inch diameter gas distribution main (Exh. NG-1, Appendix A and E).

buffer area between the north side of Service Road and south side of Route 6 (Exh. NG-1, at 7-8). After completing its analyses, the Company decided to propose the requested realignment of the Pipeline route as part of the present Project Change Filing.

2. Change in Method of Testing the Pipeline

In the Final Decision, the Siting Board approved the Company's proposed pressure-test method of using air or nitrogen ("pneumatic testing"). In the Project Change, the Company proposes to pressure test the Pipeline using water ("hydrostatic testing"). Hydrostatic testing could qualify the Pipeline for operation at a MAOP of 575 psig rather than the MAOP of 270 psig approved in the Final Decision.[3] Despite the proposed change in testing method and intended MAOP, the Company stated that the Pipeline design, materials and construction method would not require any changes. The Company indicated that it does not have any forthcoming plans to actually operate the Pipeline at a pressure above the previously approved MAOP of 270 psig (Exh. NG-1, at 1-2). However, the Company noted that the increased MAOP would allow for greater gas delivery capacity on its system, if needed in the future.

The Company stated that pre-operational hydrostatic pressure testing would preclude the need to test the line again to secure the higher MAOP in the future – which would otherwise require taking the Pipeline out of service for a period of time. The Company noted that, if the Pipeline is qualified for a MAOP of 575 psig, then to effect the increase in operating pressure to 575 psig, the Company would notify the Pipeline Engineering and Safety Division of the Department of Public Utilities (the "Department") and provide the Department with its plans for increasing the pressure in accordance with federal and Department regulations (RR-EFSB-9). The Company acknowledged that, with a successful pre-operational hydrostatic test, it would not need to secure formal approval from the Department prior to increasing the operating pressure of the Pipeline (id.).

II. PROCEDURAL HISTORY

Project Approval in Original Proceeding: EFSB 05-2

In the Final Decision, the Siting Board, acting pursuant to G.L. c. 164, §69J, approved the petition of Colonial to construct the Project.[4] The Final Decision approved construction through December 31, 2015. No appeal was taken from the Final Decision. After the Final Decision was issued, the General Court enacted statutes intended to stimulate job growth that extended the deadlines of many permits and approvals then in effect, including Siting Board approvals, for a period of four years beyond their original expiration date. Section 173 of Chapter 240 of the Acts of 2010; Sections 74 and 75 of Chapter 238 of the Acts of 2012. Consequently, the Siting Board approval of Project construction is effective through December 31, 2019.

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[3] In order to test the pipeline to qualify for a MAOP of 575 psig, the line must be pressurized to 862 psig.

[4] The citation for the Final Decision is 15 DOMSB 269 (2006). The Siting Board proceeding in which the Final Decision was issued, EFSB 05-2, is also referred to here as the "Original Proceeding."

The Filing of the Project Change and Related Events

In the fall of 2012, the Company filed notices or petitions with three separate administrative agencies, all of which related to the proposed Project Change. On September 17, 2012, the Company submitted a Notice of Project Change regarding the revised route for the Pipeline to the Massachusetts Environmental Policy Act ("MEPA") Office of the Executive Office of Energy and Environmental Affairs ("EEA") (Exh. NG-1, at 2). On September 28, 2012, the Secretary of EEA issued a certificate finding that "the project change is insignificant and does not require the preparation of an Environmental Impact Report" (Exhs. NG-1, at Appendix B; NG-2, at 2-2, and at Attachment H). On October 9, 2012, the Company submitted the present Project Change Filing, designated as EFSB 05-2A, to the Siting Board.

On October 15, 2012, the Company submitted a Development of Regional Impact ("DRI") application to the Cape Cod Commission ("CCC") for construction of the Pipeline (Exh. NG-2). The DRI application included the revised alignment and testing protocol as proposed in the Project Change filed with the Siting Board (Exhs. NG-2, at 2-3 to 2-6; NG-14). The CCC held three public hearings in which the public had an opportunity to provide input (Exh. NG-17, at 3-4). Despite strong objections and numerous concerns expressed by area residents at the public hearings and in writing, the CCC issued a final decision on February 28, 2013, approving construction of the Pipeline, as described in the DRI (id.).[5]

Public Hearing, Discovery, Evidentiary Hearing, Briefs

Following approval of the DRI by the CCC, a significant number of local residents and officials expressed concerns about the Project Change Filing and urged the Siting Board to get additional public input. On June 3, 2013, State Representative Randy Hunt of Sandwich submitted a petition opposing the installation of the Pipeline on the north side of Service Road that was signed by approximately 1,100 local residents (Hunt Reply Brief at 6). Numerous additional objections from Sandwich residents were submitted by mail and email, including a letter received from the Town of Sandwich Board of Selectmen dated April 16, 2013 (Exh. EFSB-LT-1).[6] The Presiding Officer responded to the Selectmen's letter by correspondence dated May 17, 2013 (Exh. EFSB-LT-2).[7]

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[5] The DRI application describes the proposal for testing the Pipeline so that it may be qualified to operate at a MAOP of 575 psig (Exh. NG-2, at 2-4 through 2-6). The testing procedure described in the DRI application is identical to the testing procedure described in the Project Change (id.). However, the final decision of the CCC does not specifically address the testing process (Exh. NG-17).

[6] The letter expressed the Board of Selectmen's concern over safety issues raised by the construction of the Pipeline. The Selectmen requested that the Siting Board consider "alternative routes" (Exh. EFSB-LT-1).

[7] In his response, the Presiding Officer noted that the Pipeline route had already been approved in the Original Proceeding, and that no appeal had been taken from that decision (Exh. EFSB-LT-2, at 3). Therefore, the Company would retain the right to

On May 29, 2013, the Siting Board issued a Notice of Public Comment Hearing (the "Notice") that established a Pipeline route site visit and public comment hearing at Sandwich High School on June 26, 2013.[8] Representative Hunt intervened as an additional party in the Project Change proceeding, joining the parties in the Original Proceeding: the Towns of Yarmouth and Dennis (jointly), and Andrew Collentro, a Sandwich resident. The limited participants remain from the Original Proceeding: NSTAR Electric & Gas Corporation d/b/a NSTAR Electric; Russell and Suzanne Detore, who are Attleboro residents; and Diane Pinto, a resident of West Dennis.

The Siting Board staff and Representative Hunt issued several rounds of information requests to the Company. Both the Company and Representative Hunt submitted pre-filed testimony. Siting Board staff held an evidentiary hearing on November 12, 2013, at which Representative Hunt and his witnesses were present and participated. The Company and Representative Hunt submitted their initial briefs on December 23, 2013, and their reply briefs on January 10, 2014.

III. SCOPE OF REVIEW

Standard of Review for a Project Change

When presented with a project change filing, the Board has previously articulated that it will not inquire further about the proposed change if the change does not appear to alter in any substantive way either the assumptions or conclusions reached in the Board's underlying decision. Cape Wind Project Change, 16 DOMSB 194, 202 (2008) citing Berkshire Power Decision on Compliance, 7 DOMSB 423, 437 (1997); see also, Fore River Project Change, 15 DOMSB 403, 409 (2006). In this case, the Board has chosen to conduct further inquiry, including a public hearing and receipt of written public comments; additional opportunities for intervention; extensive discovery and the presentation of intervenor testimony; an evidentiary hearing; and initial and reply briefs. These steps have established a substantial record upon which the Board can apply its standard of review for a project change, described below.

Where the Siting Board determines that further inquiry is warranted, as in this case, the Siting Board focuses the additional inquiry on the issues raised by the proposed project change. Ruling on Intervenors' Request that Brockton Power's Project Change Filing be Treated as a New Petition, EFSB 07-7A/D.P.U. 07-58/07-59, at 12 (July 16, 2010) ("Brockton Power Ruling"); IDC Bellingham – Compliance, 11 DOMSB at 38-39 (noting that "expand[ing] the scope of review to matters other than the changes to the proposed facility presented in the [filing] would raise administrative efficiency concerns and could result in the relitigation of issues decided in

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construct the Pipeline on the previously approved route if the Project Change were denied (id.).

8 The Company published the Notice in both the *Cape Cod Times* and the *Boston Globe* and distributed the Notice to various Town offices and municipal locations; copies of the Notice were also served by first class mail to owners of all property abutting the Pipeline ROW and to owners of land directly opposite on any public or private street as well as to abutters to the abutters within 300 feet of the edge of the ROW.

the underlying case"). Where the Siting Board conducts further inquiry of a project change filing, the Siting Board's standard of review is grounded in and consistent with its broad statutory mandate to ensure a reliable supply of energy, with a minimum impact on the environment, and at the lowest possible cost – while according due recognition to its prior review and findings. See Box Pond Association v. Energy Facilities Siting Bd., 435 Mass, 408, 419 (2001).

Case Law on the Reconsideration of Previous Decisions

One of the issues in dispute is whether the Siting Board, occasioned by the Project Change, should, in effect, reconsider the conclusion reached in the Final Decision that the Service Road route is preferable to the alternative routes evaluated in the Original Proceeding. Pursuant to applicable statutes, parties to a final decision of the Siting Board may take an appeal from that decision directly to the Supreme Judicial Court. G.L. c. 25, § 5, and c. 164, § 69P. No appeal was submitted regarding the Final Decision.

The failure of a party to take an appeal, however, does not permanently preclude the Board from reexamining a particular conclusion it has reached. The Supreme Judicial Court has held that administrative agencies, such as the Board, have the power to reconsider previous decisions. Stowe v. Bologna, 32 Mass.App.Ct. 612, 615 (1992) (citations omitted) aff'd 415 Mass. 20 (1993) ("In the absence of express or perceived statutory limitations, administrative agencies have an inherent authority to reconsider their decisions"). This power, however, must be "sparingly used" so that administrative decision retain the "resolving force on which persons can rely." 32 Mass.App.Ct. at 616. In support of its holding, the Stowe court noted that while an administrative decision has an adjudicatory component, it also frequently has a regulatory component that "may warrant reexamination in the light of changes in regulation, purpose, later decisional law, or applicable on-the-ground facts." 32 Mass.App.Ct. at 616.

Positions of the Parties

1. Representative Hunt's Argument

Representative Hunt acknowledges Board precedent against relitigating previously adjudicated issues, but he poses the following questions: "Isn't it important to address issues as they arise whether they have administrative efficiency concerns or not? As situations and times change isn't it important to do the right job?" (Hunt Reply Brief at 5). He further questions the Company's citation of The City Council of Agawam v. Energy Facilities Siting Bd., 437 Mass. 821, 829 (2002) as justification for its assertion that that the Project Change Filing "is not a vehicle for the re-litigation of issues that have already been fully and fairly determined" (original emphasis) (id. at 5-6). Representative Hunt asserts that "Everything should be 'on the table,' even the issue of which proposed path is the better option," and that in his view, heretofor, the issues have "not been fully and fairly determined" (id. at 6).

2. The Company's Argument

The Company asserts that the Siting Board's precedent of not revisiting prior findings from earlier decisions is appropriate and should not be modified in this proceeding. The Company

contends that the established review practice of the Siting Board in project change cases is sound as it effectively balances a number of objectives, including: (1) allowing the Siting Board and project proponents to retain as much finality as possible in final decisions; (2) avoiding the time and effort of duplicating the review of resolved matters; (3) allowing flexibility to make changes to projects as necessary while providing all parties with the opportunity to explore proposed changes and present evidence as required; and (4) ensuring that a given project, as changed, would contribute to a reliable supply of energy for consumers in Massachusetts at the lowest possible cost and with a minimum environmental impact. The Company also cites two Supreme Judicial Court cases involving the Siting Board as supporting the view that the final order of an administrative agency in an adjudicatory proceeding precludes relitigation of the same issues between the same parties. Company Brief at 10, citing Box Pond, 435 Mass. at 419; City Council of Agawam v. Energy Facilities Siting Bd., 437 Mass. 821, 829 (2002).

IV. REALIGNMENT OF THE PIPELINE ROUTE

A. Pipeline Relocation

The Company's Project Change Filing evaluated a range of issues relating to the proposed Pipeline realignment including: safety considerations, environmental impacts, construction methods, and cost. During the course of the proceeding, Representative Hunt and Siting Board staff asked additional questions about an alternative route using NSTAR's ROW[9] that was previously evaluated in the Final Decision but not selected by the Company or the Siting Board as the preferred route.

1. Alternative Route Using NSTAR ROW

In the Original Proceeding, the Siting Board approved the Company's route along Service Road after consideration of the merits of a number of routing alternatives, including the NSTAR ROW. Final Decision at 54, 55, 61-74. The Siting Board concluded that the primary route along Service Road would be preferable to the NSTAR ROW alternative route with respect to impacts relating to wetlands, water resources, land use and land resources, and would be comparable with respect to noise and traffic impacts. Final Decision at 72. Overall, the Siting Board found that the primary route along Service Road would be preferable to the alternative route with respect to environmental impacts. Id. The Siting Board found that the Service Road route would cost approximately $1,000,000 less than the NSTAR ROW route and that the Service Road route would be slightly more reliable than the NSTAR ROW given the greater certainty with which the segment can be approved and constructed. Id. at 73-74. Ultimately, the Siting Board concluded

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[9] In the Original Proceeding, the Company identified and evaluated several alternative routes, the most promising of which was known as the "NSTAR ROW." Final Decision at 34. From the intersection of Route 130 and Service Road, the NSTAR ROW route runs southerly on Route 130 approximately one mile, then easterly on the NSTAR multi-circuit transmission ROW to its intersection with Service Road just to the west of the Route 6 / Route 149 interchange. The total length is approximately 6.6 miles.

"the Western Segment primary route would be superior to the alternative route with respect to providing a reliable energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost." Id. at 74.

As noted above, the Company urges the Siting Board not to revisit its findings in the Final Decision regarding the NSTAR ROW alternative route. Representative Hunt and many Service Road residents view the NSTAR ROW alternative as preferable to the Service Road route (either the originally approved route or the Project Change route).

2. Safety of Project Change Route Compared to the Approved Route on Service Road

Colonial stated that the overall safety of a pipeline is established by the safety of the design, the proper specification and fabrication of the pipe, its proper installation, the performance of necessary tests as installation is completed, and an ongoing program of testing and maintenance (Tr. at 49). The Company described a number of features in the Project Change that are intended to ensure safety, including: pipeline design, operation, and maintenance in accordance with state and federal regulations; high quality new steel pipe; factory coating for corrosion protection; use of certified welders; radiography of all welds; cathodic protection; use of at least three feet of cover over the pipe; visible markers conforming to US Department of Transportation requirements; hydrostatic testing to almost three times the initial MAOP; monitoring by a computerized system of supervisory control and data acquisition ("SCADA"); an annual leak survey by vehicle; and internal inspection of the pipe with automated devices known as "pigs" (Exh. EFSB-10, at 12-13). The Company noted that inadvertent "dig ins" are the principal cause of pipeline accidents across the country and that the Project Change would further reduce the risk of dig ins by keeping the Pipeline farther away from other road and utility work activities (Tr. at 49).

The Company indicated that it would be willing to install steel plates above the pipeline at those locations where the pipeline would cross under the edge of pavement on Service Road (RR-EFSB-7).[10] This would provide added protection for the pipeline in the event that a heavy truck were to drive off the Service Road pavement directly above the point where the pipeline crosses under the pavement (id.). The Company stated that the disadvantages of installing plates would be the added cost of approximately $48,400 and potential interference with future road repaving (id.).

The Company also noted the role of emergency response planning and its annual Emergency Response Plan ("ERP") (submitted for review and approval to the Department) in ensuring safety of the Pipeline (Exh. RHKL-1). The Company's ERP covers a range of circumstances

[10] At a minimum, the Pipeline would need to cross Service Road in two locations to tie in to the Company's existing Sagamore Line. Depending on the slope and soil conditions of the layout beyond the unpaved north shoulder of Service Road, the Company indicated that the final design of the Pipeline (to be developed in consultation with the chosen contractor) might require the Pipeline to remain under the pavement in additional locations (Exhs. EFSB-14; EFSB-15; EFSB-18).

(e.g., gas leaks, fires, explosions, etc.) for which an emergency response may be necessary (id.). In connection with its ERP, the Company provides ongoing emergency, operating, and maintenance training to Company personnel. The Company stated that it would provide training to the Sandwich Fire Department and any other interested Town officials that would focus on communication and incident response relating to the Pipeline. The training would also involve a simulated incident to help prepare first responders for a variety of potential emergency scenarios including matters of egress for abutters, access for Company personnel during heavy traffic conditions, and other scenarios identified by Representative Hunt and area residents.

3. Safety of the Service Road Routes Compared to the NSTAR ROW Alternative Route

In comparing the Service Road routes to the NSTAR ROW alternative route with regard to safety, Colonial indicated that the Pipeline would be safe in either location (Exh. EFSB-10). However, Colonial pointed out several factors where the safety profile of the two routes would differ in the event of a Pipeline break and fire. The Company stated that the response time along the NSTAR ROW would be delayed because the NSTAR high voltage lines serving the area most likely would need to be taken out of service before emergency vehicles could use water for firefighting. In addition, the Company noted that depending on the terrain and time of year, accessing and traveling along an electric transmission right of way could be more challenging for multiple emergency vehicles (id. at 6).

Furthermore, the Company noted that the NSTAR ROW route has a sizeable residential area abutting its south side and that the homes are located relatively close to the edge of the ROW (Exh. EFSB-10, at 6; Tr. at 52). The Company indicated that the proximity of the homes on the NSTAR ROW would increase the potential for dig ins relative to the Service Road route, which has no developable land and no nearby homes and on the north side of the street (Tr. at 51-53). Similarly, the portion of the NSTAR ROW alternative along Route 130 in Sandwich is an area with commercial development that is also subject to concerns about third party dig ins (Tr. at 52).[11]

Conversely, the NSTAR ROW may be advantageous relative to Service Road with respect to access and egress safety issues. There are 28 homes located directly on Service Road and 69 homes with single-street access to Service Road (Exh. EFSB-10(b) at 3). In the event of a Pipeline fire at the point of intersection of the access with Service Road, egress by road would

[11] Additional difficulties cited by the Company with respect to using the NSTAR ROW include: (1) the requirement for legislative approval of the route, associated with its location partly on lands protected by Article 97; (2) a need for consent from NSTAR; (3) a need to obtain legal authority for such construction from at least 58 of the approximately 71 underlying property owners along the route; (4) the inability to tie back to the existing Sagamore pipeline at the end of Phase I. The Company noted the potential for delay resulting from these factors. In addition, the Company stated that it would need to design the Pipeline in a way to minimize the adverse effect of induced current from the power lines on the Pipeline's cathodic protection system (Exhs. RHDC-02; RHDC-03; Tr. 59-64, 100-101, 132-133, 136; RR-EFSB-6).

likely be delayed until the fire was extinguished. In contrast, the egress routes for residential areas along the NSTAR ROW do not cross or approach the NSTAR ROW route (Exhs. EFSB-10(b); RH-1, at 4).

4. Environmental Impacts

With regard to land use and visual impacts, the Project Change route would require a total of approximately five acres of vegetation removal (including scrub oak, pitch pine, red pine and various understory species) within a ten- to 15-foot wide strip along its 4.4 mile length; after construction, the area would be rough graded, stabilized and reseeded with a field mix (Exh. NG-1, at 6-7). The record indicates that some abutting residences may experience increased visual impacts from Route 6 resulting from tree clearing necessitated by the Project Change. The Company has agreed to mitigate such visual impacts by: (1) offering screening plantings at no cost to affected landowners; and (2) where appropriate, thickening the existing vegetation north of the cleared area of Service Road.

With respect to construction-related noise, the Project Change would entail additional impacts relating to vegetation clearing from chain saws, chippers, feller bunchers (a type of harvester that can rapidly cut and gather several trees before felling them), and trucks. Conversely, the reduced need for pavement sawing, pavement removal, and road resurfacing with the Project Change would reduce construction-related noise impacts. Noise modeling performed by the Company determined that the removal of the ten- to 15-foot vegetated strip north of Service Road would increase post-construction noise impacts stemming from Route 6 traffic by about 0.2 to 0.3 A-weighted decibels ("dBA") at sensitive receptor locations south of Service Road (Exh. EFSB-10(i)). The Company agreed to conduct pre- and post-construction noise measurements to substantiate the analysis and to share the results with the Town and abutters (Exh. RHDC-27).

The Company's original plan to locate the Pipeline at the edge of Service Road would have necessitated the closure of one lane of traffic during typical construction work and the closure of both lanes of traffic for certain activities (Exhs. NG-1, at 9; EFSB-29). With the Project Change, the Company indicated that traffic flow would be maintained at all times in the eastbound lane, and that westbound lane closures would be far less frequent, with less resulting traffic congestion. In addition, a modeling analysis performed by the Company indicated that the Pipeline could reduce the need for liquefied natural gas ("LNG") trucking (and the resulting traffic impacts) to the Company's South Yarmouth LNG facility (Exhs. NG-1, at 12-13; NG-1 at Appendix E at 3).

The area north of Service Road is mapped a Priority Habitat for the Eastern Box Turtle (a species of special concern) by the Natural Heritage and Endangered Species Program ("NHESP") (Exhs. NG-1, at 7; EFSB-31). The modified Pipeline location was reviewed with the NHESP and the prior turtle protection plan from the original Pipeline location was updated to include: (1) seasonal limits on clearing; and (2) pre-work "turtle sweeps" by trained personnel. NHESP informed the Company that with the updated turtle protection plan, the Project Change would not result in a "take" of the Eastern Box Turtle (Exh. EFSB-31; NG-12).

There appear to be no wetlands along the modified Pipeline route, and trench depths of six to seven feet are well above typical depths to groundwater (Exh. EFSB-31). To reduce the

potential for long-term impacts to groundwater from accidental fuel spills, the Company agreed during the CCC review to fuel all equipment and perform necessary maintenance at a commercial fuel station or the contractor's facility.

A prior cultural resource sensitivity assessment conducted by the Company in 2006 determined that Service Road and its environs are categorized as a "low-sensitivity area" due to the disturbance of the area during construction of Route 6 and Service Road. Therefore, the Company determined that the Project Change, like the original design, would not adversely affect cultural resources.

5. Construction Methods

The Company indicated that the construction methods for the Project Change would be similar to those of the originally approved Pipeline, although the off-road location may allow for longer sections of pipeline to be used (Exh. NG-1, at 10). As noted above, tree clearing would also be required by the Project Change. Where in-road construction may still be needed for the Project Change, the Company indicated that the Pipeline would be located at least ten feet away from the existing water main (Exhs. EFSB-19; EFSB-21). The Company proposes to maintain the approved construction hours and related procedures included in the Final Decision (Exh. EFSB-7).

6. Project Change Cost

Based on bids already received, the Company estimated that the Project Change would be approximately $375,000 to $450,000 less costly than the originally approved Pipeline (Exh. EFSB-34). The Company calculated that with the Project Change, the decreased need for pavement cutting, removal and restoration more than offsets the additional costs for vegetation removal, mitigation and earth work (Exh. NG-1, at 6).

B. Positions of the Parties

1. Representative Hunt's Argument

Representative Hunt argues that the proposed Pipeline presents numerous critical issues that have not been adequately addressed by the Company. These issues include: the safety and means of egress for area residents during a potential Pipeline incident; Pipeline safety; threats to the Town Water District's water main; fire protection adequacy; visual/noise impacts; traffic; cost; and various alleged procedural deficiencies. He cautions that approval of the Pipeline should not be granted until all such questions have been fully addressed and answered completely (Hunt Brief at 12). Ultimately, Representative Hunt concludes, "Service Road is not the best option for this proposal and that other locations need to be considered and evaluated…" (id.).

One of Representative Hunt's primary concerns about the Pipeline is safety and, in particular, the limitations on egress for the residents who live on Service Road and on cul-de-sacs off Service Road (Exhs. EFSB-10(b); RH-1, at 4). There are 28 homes located directly on Service Road and 69 homes with single-street access to Service Road (Exh. EFSB-10(b), at 3). Representative Hunt argues that a pipeline fire or explosion at the point of intersection of the access with Service Road would trap the residents (especially seniors, young children, and those with

disabilities) in their subdivisions (Exh. RH-1, at 4; Hunt Brief at 2).[12] This situation is exacerbated by a lack of a water main and fire hydrants along an approximately two-mile length of Service Road (Hunt Reply Brief at 7; Exh. EFSB-10(f) at 6). Representative Hunt raises similar concerns with respect to the clients residing at the Spaulding Rehabilitation Hospital and the Mary McCarthy Hospice House, both located on Service Road (Hunt Brief at 10).

Representative Hunt notes that high-pressure gas pipelines can be dangerous, as demonstrated in tragic incidents in recent years in San Bruno, California, and Sissonville, West Virginia; and even locally on Whites Path in South Yarmouth where an incident in 1991 caused property damage, injuries and shut down Route 6 (Hunt Reply Brief at 14). He contends that even with accepted safety practices "bad things can happen" (Hunt Brief at 9). Representative Hunt argues that the co-location of fire hydrants should be a required safety condition for allowing a high-pressure gas pipeline on Service Road (Hunt Brief at 9).

Representative Hunt alleges that, by failing to seek "input or permission from the Sandwich Board of Selectmen for placing the proposed pipeline within the Service Road layout," the Company did not follow G.L. c. 164 §§ 70 and 70A (Hunt Brief at 1). Although he acknowledges support for the Project Change by officials at the Town Water District and the Town Departments of Planning and Public Works, he is skeptical of their intentions: "We also question the motives of a few local town officials who have put the concerns of a bike path ahead of those issues and concerns of area residents" (Hunt Reply Brief at 1).

Despite the fact that the Company has been working on the Pipeline proposal for almost twelve years, Representative Hunt notes that the Company still does not have a final design and has not yet selected a contractor, making the Company's Pipeline cost estimates unreliable in his view (Hunt Reply Brief at 8, 13). Representative Hunt argues that the NSTAR ROW alternative route is not as costly or burdensome as characterized by the Company and that it should be evaluated more carefully before a potential Pipeline along Service Road – with or without the Project Change – is approved and built (id. at 5, 12).[13]

Representative Hunt argues that that any disruption of the asbestos-cement water main by construction of the Pipeline would have an extremely negative health impact on the community (id.). He observes that, notwithstanding this concern, slope conditions north of Service Road may necessitate retaining the Pipeline route close to or within Service Road in a few locations,

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12 Representative Hunt calls attention to a November 2012 gas leak that happened on Service Road near Mill Street in which, he contends, "property owners were not allowed to leave their homes and were trapped on Mill Street for a number of hours" (Hunt Brief at 7).

13 Representative Hunt asserts: "Our understanding is that the EFSB never did reject the NSTAR right-of-way as the preferred pipeline route" (Hunt Brief at 10). In fact, in the Final Decision, the Siting Board found that the Service Road route was a superior route in comparison with the alternative routes evaluated, including the NSTAR ROW. See Final Decision at 74.

potentially damaging the asbestos cement water main despite the Company's best intentions (Hunt Brief at 4).

With regard to the removal of trees and brush, Representative Hunt asserts that this would be "devastating to the character of the roadway, to the community, and to area residents" and would diminish property values (Hunt Brief at 3; Hunt Reply Brief at 8). Representative Hunt dismisses the Company's proposed visual mitigation measures as inadequate; he also criticizes the sound study performed by the Company as the readings were taken only in the late fall and, he asserts, are not representative of conditions for different times of the year (Hunt Brief at 6).

Representative Hunt is concerned with traffic – whether the Pipeline is located under or north of Service Road (Hunt Reply Brief at 10). He asserts that the Company has not performed a traffic study to determine the effects of the Pipeline construction (Hunt Brief at 3-4). With a reduced vegetated visual buffer between Service Road and Route 6, Representative Hunt posits that motorists stuck in traffic on Route 6 would more easily see the opportunity to detour onto Service Road as a cut-through route (Hunt Reply Brief at 4). Representative Hunt also warns that potential Saturday work hours should not be allowed under any circumstances given the heavy traffic that occurs on summer weekends in the area (Hunt Reply Brief at 9).

2. The Company's Argument

The Company notes that Representative Hunt's arguments "do not rely on substantial evidence; instead, they base their concerns on conjecture, mischaracterizations of the Company's Project, and speculative theories" (Company Reply Brief at 3). The Company asserts that nowhere in Representative Hunt's Brief does he make a claim that the Project Change is an inferior proposal as compared to the Pipeline approved previously by the Siting Board. The Company views the majority of Representative Hunt's issues as relating to the Pipeline generally – not to the proposed Project Change – which it regards as the appropriate focus of this proceeding (Company Reply Brief at 1-2).

The Company asserts that it has demonstrated that the Project Change will improve the reliability of its distribution system and provide a minor cost advantage compared to the Pipeline approved in the Final Decision (Exh. NG-1, at 10). With respect to environmental impacts, the Company asserts that the Project Change would be comparable to, or better than, the originally approved Pipeline. The Company contends that any additional environmental impacts would be limited to the visual impacts from the clearing of vegetation and that such impacts would be minimized and mitigated by the Company's visual mitigation program (Exh. NG-1, at 7).

The Company argues that the record in this proceeding establishes that: (1) the Company would safely construct, operate and maintain the Pipeline in accordance with all applicable federal and state safety regulations; (2) the Pipeline does not present any unique or otherwise unprecedented safety considerations as compared to natural gas pipelines in other areas of the Company's service territory; and (3) with the Project Change Filing, the Pipeline is incrementally safer than the already approved Service Road route (see Exhs. NG-1, at Section 3.5; EFSB-10; EFSB-11; EFSB-24; EFSB-25; EFSB-26; RHDC-29; RHDC-32; RR-EFSB-3; RR-EFSB-5; RR-RH-2).

The Company avers that safety is of paramount importance and that the Company's track record is excellent. National Grid (the parent company of Colonial Gas) owns more than 4,000 gas main segments with a 20-inch or larger diameter throughout its Massachusetts service territory – including both urban and rural residential areas (Exhs. RHDC-29; Attachment RHDC-29; RR-EFSB-5). The Company notes that National Grid's Massachusetts distribution system includes a number of locations where: (1) there are three gas lines in a residential area on the same street (at least two of which are high-pressure lines) (Exh. RHPS-8); and (2) there are high-pressure gas distribution pipelines in residential areas where municipal water supply is not available for fire suppression purposes (RR-RH-2).

The Company does not dispute that the hypothetical incident scenarios contemplated by Representative Hunt are possible; rather, the Company contends that such scenarios are extremely unlikely events and that the Company takes great care to avoid and minimize such risks in full compliance with strict federal, state, and Company standards to which the Pipeline would be designed, constructed, operated and maintained (Company Reply Brief at 6). With regard to the pipeline incidents in San Bruno, California, and Sissonville, West Virginia, the Company notes that it has provided detailed descriptions of those incidents, explained the lessons learned, and prepared an extensive list of precautions that would be taken by the Company to minimize the likelihood of similar events ever occurring on Service Road (Exh. EFSB-10(p), (q); Company Initial Brief at 13-14).

The Company contends that the evidentiary record of this proceeding also establishes that the environmental impacts associated with the Project Change have been minimized pursuant to the Siting Board's statutory mandate to minimize environmental impacts consistent with considerations of cost and reliability. The Company asserts the Project Change would have an incremental reliability benefit because the off-road location would help to minimize the risk of third-party dig ins – the leading cause of pipeline incidents (Exh. NG-1, at 10; Company Brief at 17).

The Company asserts that, although the potential for adverse visual impacts to most abutters is minimal and most of the existing vegetation would remain, the Company has nevertheless proposed a robust visual mitigation program to address particular concerns raised by the Town and area residents. Given these features, the Company argues that the potential visual impacts for the Project Change are minimal and would be effectively mitigated (Company Brief at 19).

The Company cites the record in the proceeding as establishing that noise impacts would be properly minimized. The strip of vegetation to be removed is a small portion of the typically 100 foot-wide vegetated area between Service Road and Route 6 (Exh. EFSB-10(i)). The Company asserts that noise levels decrease with distance and are also reduced by the blocking effects of intervening terrain, structures, and solid fencing (id.). The Company notes that there are wide variations in existing ambient noise levels over the course of a day, and seasonally, and as a function of traffic levels and speed, road surface conditions, and weather conditions (id.). Although thick stands of trees can provide some attenuation of traffic noise from Route 6, the Company asserts that it is a decidedly second-order effect (Company Brief at 21). The Company asserts that its noise study establishes that the proposed removal of ten to 15 feet of trees would not cause a discernible change in noise levels at residences along the south side of Service Road (id.).

The Company indicates that the Project Change would decrease traffic impacts as compared to the approved location (Company Brief at 22). Furthermore, the Company would develop a comprehensive traffic management plan ("TMP") to be used during construction with input from the Town and the Massachusetts Department of Transportation. The TMP will be submitted to the Siting Board in accordance with the Siting Board's original approval of the Project in the Final Decision (Exhs. NG-1 at 10; EFSB-29). The Company also points out that the Project would reduce the need for LNG trucking on Cape Cod, which would help reduce traffic (Company Brief at 23).

The Company indicates that it would use best construction practices for the Pipeline's construction (Exh. EFSB-10(m); Company Brief at 23). The Company states that it has shown that it will take steps to minimize the risk of adverse impacts to existing utilities in Service Road during construction of the Pipeline. As an initial matter, the Company argues that it routinely performs work in close proximity to existing utilities and is experienced in implementing measures to protect those utilities (Exh. EFSB-10(c)). The Company's gas distribution line installation and maintenance projects in urban areas typically involve work in the vicinity of cement or asbestos-cement water mains, sewer mains, and storm-water systems; thus, the Company believes its engineers and contractors possess all the necessary experience to deal with such issues (id.)

The Company notes the apparent inconsistency – acknowledged by Representative Hunt's witness – that, whatever safety concerns Representative Hunt has regarding the Pipeline, such risks are already present given the existing twelve-inch diameter pipeline operating at 270 psig on the south side of Service Road. (Tr. 1, at 164-65; Company Reply Brief at 9). In fact, Representative Hunt's witness acknowledged that in some respects the proposed Pipeline has a more modern design and more advanced safety features than what is present in the existing gas pipeline on Service Road – installed approximately 50 years ago (Tr. at 165-167).

In response to Representative Hunt's assertion that Company has not followed G.L. c. 164, § 70, the Company argues that his concerns are "premature and misplaced" (Company Reply Brief at 12-13). The Company contends that G.L. c. 164, § 70 imposes an affirmative obligation on the Company to "put all such streets, lanes and highways in as good repair as they were in when opened" (id., citing G.L. c. 164, § 70; Boston Gas Company v. City of Newton, 425 Mass. 697, 699-700 (1997)). The Company asserts that neither Section 70 nor Section 70A requires the Company to seek "guidance and permission" from the Town Board of Selectmen prior to obtaining approval from the Siting Board. The Company claims that it is committed to seeking approval from the Town Board of Selectmen in due course, subsequent to the Siting Board's approval of the Project Change filing.

C. Questions for the Siting Board on Pipeline Location

1. In view of the information developed in this proceeding, should the Board reevaluate its original selection of a route along Service Road instead of the previously noticed alternative route along the NSTAR ROW? If so, considering cost, reliability, environmental impacts, as well as safety considerations, does the Board wish to: (1) approve the requested Project Change route to the north of Service Road; (2) reject the Project Change and retain the originally approved route on Service Road; or (3) reject the Project Change, and select the previously noticed alternative along the NSTAR ROW? If the Board does not choose to reevaluate its original selection of a route, then the Board's choice of a route for the Pipeline would be either the Project Change route or the originally approved route, both along Service Road.
2. Does the Board want to impose additional conditions on the Pipeline? For example:

    a. The Board could require all environmental and safety mitigation measures proposed by Company in this proceeding; measures already required by the CCC; and additional measures.

    b. The Board could require certain diesel-powered non-road construction equipment to be fitted with emission control devices to be installed on the exhaust system. There was no such requirement in the Original Proceeding, but such a requirement has been imposed in recent cases.[14]

    c. The Board could require that the Company provide the Siting Board with a certified cost estimate for construction of the Pipeline, prior to construction, that explains any cost changes relative to the information presented in this proceeding; in addition, require the Company to provide the Siting Board with a final cost of Pipeline construction within 60 days of its completion.

    d. The Board could modify the procedure to be used by the Company for seeking approval for any additional work hours requested outside the previously approved schedule (Monday to Friday, 7 a.m. – 6 p.m., from after Labor Day to before Memorial Day) consistent with the Siting Board's more recent decisions. For example:

        The Siting Board directs the Company to conduct all construction work between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, excluding holidays, from after Labor Day to before Memorial Day. To the extent the Company finds

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[14] The requirement that certain diesel-powered non-road construction equipment be fitted with emissions control devices to be installed on the exhaust system was imposed in Footprint Power Salem Harbor Development LP, Final Decision at 107 (2013) and in New England Power Company and Western Massachusetts Electric Company, EFSB 10-1, D.P.U. 10-107, D.P.U. 10-108, Final Decision at 99 (2012).

that construction is necessary outside of these weekday hours or on weekends or holidays, or during the period from Memorial Day through Labor Day, the Company shall seek written permission from the relevant Town of Sandwich authorities prior to the commencement of such work, and provide the Siting Board with a copy of such permission. If the Company and Town officials are not able to agree on such request, the Company may file a written request for authorization to the Siting Board prior to performing such construction, provided that it also notifies the relevant Town of Sandwich authorities in writing of such request.

V. PIPELINE TESTING

A. Summary of Evidence on Pipeline Testing

1. Hydrostatic Testing Procedure

Hydrostatic testing of the Pipeline would proceed as follows: the newly constructed pipe would be filled with potable water, pressurized to the test pressure, stabilized, and monitored for at least twelve hours (Exh. NG-1, at 13). Approximately 180,000 gallons of water would be required for the hydrostatic test, which the Town Water District indicated it would provide (id.). The water would be tested before being drained from the pipe and, with satisfactory test results, discharged through a fabric filter into an upland area (id.). The inside of the pipeline would then be dried and cleaned (id.).

2. Significance of Pre-Operational Hydrostatic Testing

Allowing the Company to test the pipeline hydrostatically so that it may qualify for a MAOP of 575 psig before it is operational may prevent future delay and disruption (Exh. NG-1, at 11). If the pressure is increased after the Pipeline becomes operational, such an increase may be effected without removing the pipeline from service and disrupting natural gas supply to customers (id.). Once the pipeline has qualified for a MAOP of 575 psig the Company would not need to secure formal approval from the Pipeline Safety Division of the Department in order to increase the pipeline pressure (RR-EFSB-9).

3. Pressure-Related Safety Regulation

The Pipeline Safety and Engineering Division of the Department would oversee the operation of the Pipeline, and has the authority to suspend or restrict the use of the pipeline if it finds that operation of the pipeline, whether as a result of increased pressure or otherwise, is hazardous to life or property (RR-EFSB-9). The Pipeline Safety and Engineering Division implements a comprehensive set of federal and state statutes and regulations designed to ensure pipeline safety. Furthermore, there are both federal and Commonwealth statutes through which Town residents may seek to obtain relief from pipeline conditions they may consider unsafe. The Commonwealth statute is found at G.L. chapter 164, 105A, and the federal statute is found at 49 U.S.C. § 60121(a)(1).

The Commonwealth statute provides that either the selectmen of a town in which a gas company operates or 20 of the company's customers may file a written complaint with the DPU regarding, among other things, the "pressure at which [natural] gas is being or shall be stored, transported, or distributed." The DPU is required to notify the gas company and to "give a public hearing to such petition and to such company." After the hearing, the DPU may make such order "as it may deem necessary" G.L. c. 164, § 105A.

B. Position of the Parties

1. Representative Hunt's Argument

Representative Hunt raises a number of objections to the Company's proposal to test the Pipeline so that it may qualify for a MAOP of 575 psig (Exh. RH-1). Representative Hunt asserts, "We do not believe that [installing] the 270 psig is the real intent here nor should it be treated that way. Installing a 575 psig pipeline is the real purpose of this project" (Hunt Brief at 11). He further contends, "high pressure pipelines do not belong in residential neighborhoods" (Exh. RH-1, at 3). At the higher operating pressure, Representative Hunt asserts that the "impact zone" of a Pipeline incident would be expanded, threatening additional Service Road residents (Hunt Brief at 8). Finally, if a pressure increase were ever needed, Representative Hunt argues that the testing should be done when the need arises – not years in advance – as the Pipeline's integrity should be re-validated when the change actually occurs (id.)

2. The Company's Argument

According to Colonial, a pipeline with a MAOP of 270 psig can meet its current and reasonably foreseeable demand (Exh. NG-1, at 11). However, if demand were to increase substantially in the future, then higher pressure operations of the Pipeline could be warranted (Exh. NG-1, at 11; Tr. at 98-99).

The Company asserts that principal advantage to qualifying the Pipeline for 575 psig before it is operational is that it would avoid the need for testing in the future, which could involve service interruptions for customers at that time (Exh. NG-1, at 11; Tr. at 98-99). Colonial stated that any increase in Pipeline pressure would be conducted with the oversight of the Pipeline Safety and Engineering Division of the Department (RR-EFSB-9). The Company acknowledged that it would not need to secure formal approval from the Department in order to increase the Pipeline pressure once it is qualified at the MAOP 575 psig following a successful pressure test (RR-EFSB-9).

C. QUESTIONS FOR THE SITING BOARD ON PIPELINE TESTING

1. Does the Board want to allow the Company to use a hydrostatic test of the Pipeline so that it qualifies for an MAOP of 575 psig, rather than the pneumatic pressure test and a MAOP of 270 psig originally approved by the Board?

2. Does the Board want to impose any conditions in the event that the Company seeks to increase the actual operating pressure of the Pipeline in the future to an amount greater than 270 psig? One such condition might be that the Company must notify the Board and all parties before increasing the operating pipeline pressure above 270 psig, subject to the Board's further review and approval. The Board could also require that this notification include an update on the need for such a pressure increase.